WHAT IS CLAIMED IS:

1. A zoom system for forming an image with varying magnification comprising one or more variable focal length lenses.

2. The zoom system of claim 1, wherein the variable focal length lens is made of a micromirror array lens, wherein the micromirror array lens comprises a plurality of micromirrors.

3. The zoom system of claim 2, and wherein each micromirror is controlled to change the focal length of the micromirror array lens.

4. The zoom system of claim 2, wherein the translation of each micromirror of the micromirror array lens is controlled.

5. The zoom system of claim 2, wherein the rotation of each micromirror of the micromirror array lens is controlled.

6. The zoom system of claim 2, wherein the translation and rotation of each micromirror of the micromirror

array lens are controlled.

7. The zoom system of claim 2, wherein the micromirrors of the micromirror array lens are arranged to form one or more concentric circles.

8. The zoom system of claim 2, wherein each micromirror of the micromirror array lens has a fan shape.

9. The zoom system of claim 2, wherein the reflective surface of each micromirror of the micromirror array lens is substantially flat.

10. The zoom system of claim 2, wherein the reflective surface of each micromirror of the micromirror array lens has a curvature.

11. The zoom system of claim 10, wherein the curvature is controlled.

12. The zoom system of claim 2, wherein each micromirror of the micromirror array lens is actuated by electrostatic force.

13. The zoom system of claim 2, wherein each micromirror of the micromirror array lens is actuated by electromagnetic force

14. The zoom system of claim 2, wherein each micromirror of the micromirror array lens is actuated by electrostatic force and electromagnetic force.

15. The zoom system of claim 2, wherein the micromirror array lens further comprises a plurality of mechanical structures upholding the micromirrors and actuating components actuating the micromirrors, wherein the mechanical structure and the actuating components are located under the micromirrors.

16. The zoom system of claim 2, wherein the micromirror array lens is a reflective Fresnel lens.

17. The zoom system of claim 2, wherein the micromirrors are arranged in a flat plane.

18. The zoom system of claim 2, and wherein each micromirror is controlled to change the focal length of the micromirror array lens.

19. The zoom system of claim 2, wherein the micromirror array lens is an adaptive optical component, wherein the micromirror array lens compensates for phase errors of light introduced by the medium between an object and its image.

20. The zoom system of claim 2, wherein the micromirror array lens is an adaptive optical component, wherein the micromirror array lens corrects aberrations.

21. The zoom system of claim 2, wherein the micromirror array lens is an adaptive optical component, wherein the micromiror array lens corrects the defects of the zoom system that cause the image to deviate from the rules of paraxial imagery.

22. The zoom system of claim 2, wherein the micromirror array lens is an adaptive optical component, wherein an object which does not lie on the optical axis can be imaged by the micromirror array lens without macroscopic mechanical movement of zoom system.

23. The zoom system of claim 2, wherein the micromirror

array lens is controlled to satisfy the same phase condition for each wavelength of Red, Green, and Blue (RGB), respectively, to get a color image.

24. The zoom system of claim 23, further comprising a plurality of bandpass filters.

25. The zoom system of claim 23, further comprising a photoelectric sensor, wherein the photoelectric sensor comprises Red, Green, and Blue (RGB) sensors, wherein a color image is obtained by treatment of electrical signals from the Red, Green, and Blue (RGB) sensors.

26. The zoom system of claim 25, wherein the treatment of electrical signals from the Red, Green and Blue (RGB) sensors is synchronized and/or matched with the control of the micromirror array lens to satisfy the same phase condition for each wavelength of Red, Green and Blue (RGB), respectively.

27. The zoom system of claim 1, wherein the variable focal length lenses comprise a first variable focal length lens and a second variable focal length lens, wherein the focal length of the first variable focal length

lens and the focal length of the second variable focal length lens are changed to form the image in-focus at a given magnification.

28. The zoom system of claim 27, wherein the first variable focal length lens is made of a micromirror array lens, wherein the micromirror array lens comprises a plurality of micromirrors.

29. The zoom system of claim 27, wherein the second variable focal length lens is made of a micromirror array lens, wherein the micromirror array lens comprises a plurality of micromirrors.

30. The zoom system of claim 27, wherein the first variable focal length lens and the second variable focal length lens are made of micromirror array lenses, wherein each of the micromirror array lenses comprises a plurality of micromirrors.

31. The zoom system of claim 27, further comprising a beam splitter positioned between the first variable focal length lens and the second variable focal length lens.

32. The zoom system of claim 27, wherein the first variable focal length lens and the second variable focal length lens are positioned so that the path of the light reflected by the first variable focal length lens and the second variable focal length lens is not blocked.

33. The zoom system of claim 27, further comprising a focus lens group, an elector lens group and a relay lens group, wherein the first variable focal length lens forms a variator lens group, and the second variable focal length lens forms a compensator lens group.